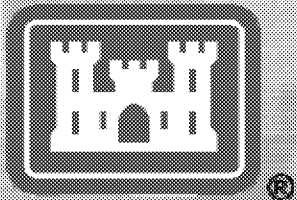


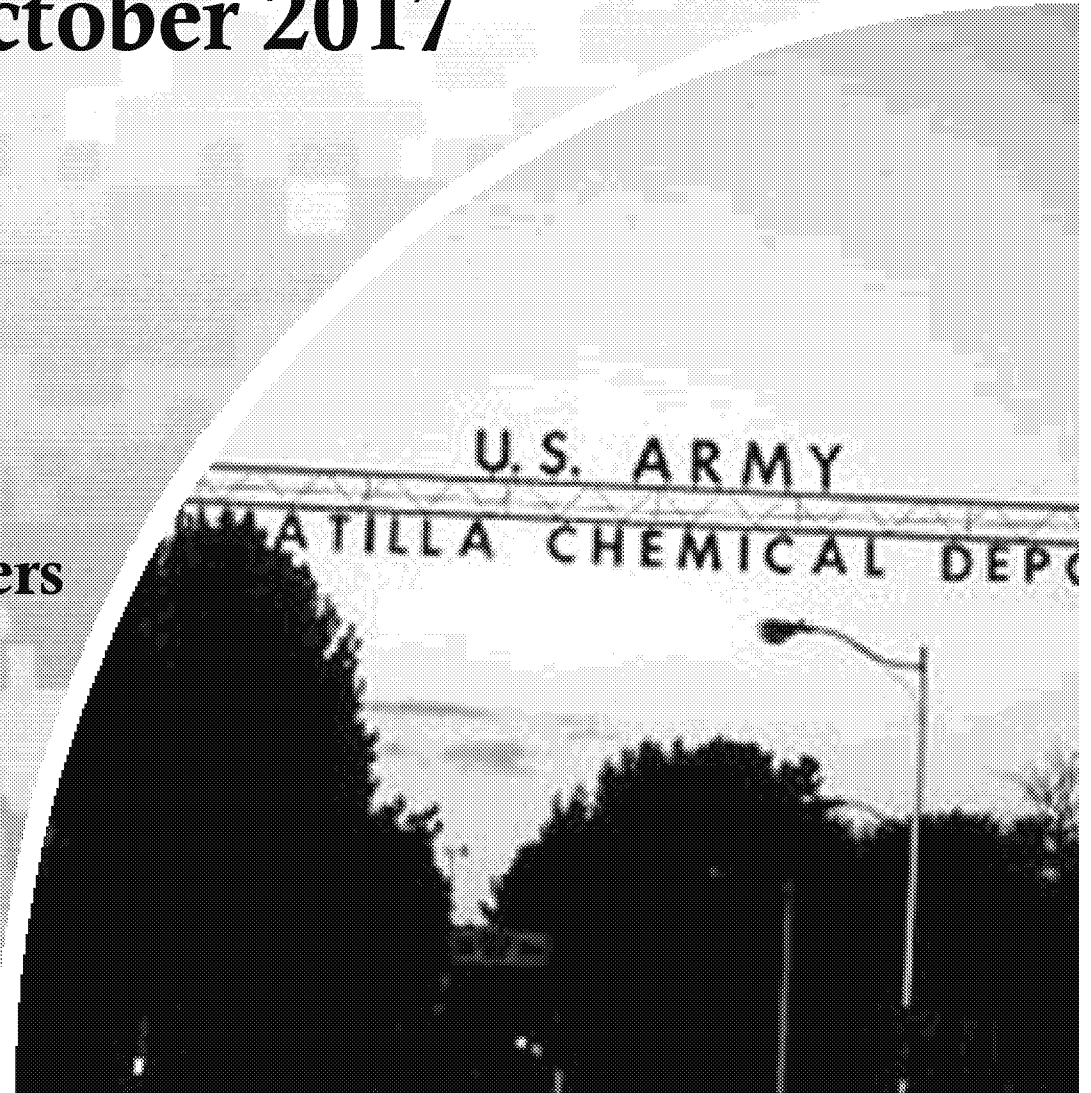
Umatilla Chemical Depot CERCLA In-Process Review 18 October 2017

**Michele Lanigan, BEC
BRAC Office**

**Robert Yust, P.E., PM
Adam Plack, P.E., PM
US Army Corps of Engineers**



**US Army Corps of Engineers
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Attendees

BRAC:

Michele Lanigan

USACE:

Robert Yust

Adam Plack

Kris Addis

Judy Strawhecker

Jim Bond

Lew Kovarik

Blair Kinser

EPA:

Harry Craig

Kwasi Boateng

DEQ:

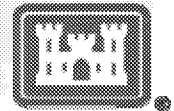
Dan Duso

David Anderson

Bay West:

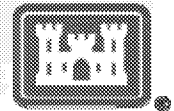
Tim Salane

Michelle Klomp



Agenda

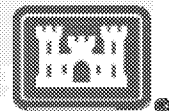
- ✓ **Introduction**
- ✓ **Ammunition Disposal Area (ADA) Clean-up**
- ✓ **ADA Arsenic Discussion**
- ✓ **Groundwater Treatment**
- ✓ **Site Visit - Groundwater Treatment**
- ✓ **Site Visit – ADA**
- ✓ **Close**



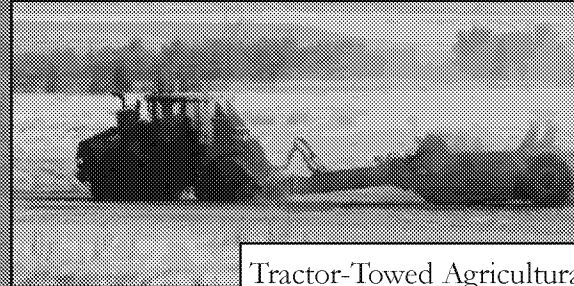
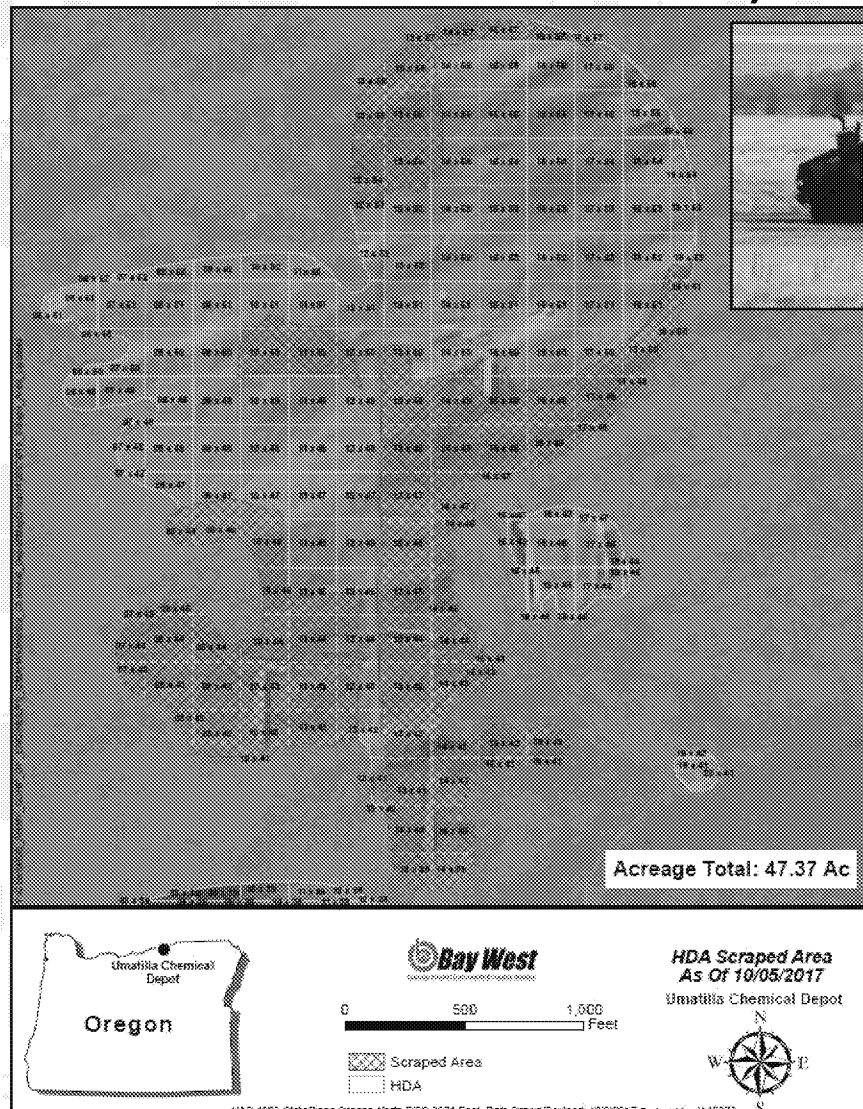
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Umatilla ADA RD/RA Agenda

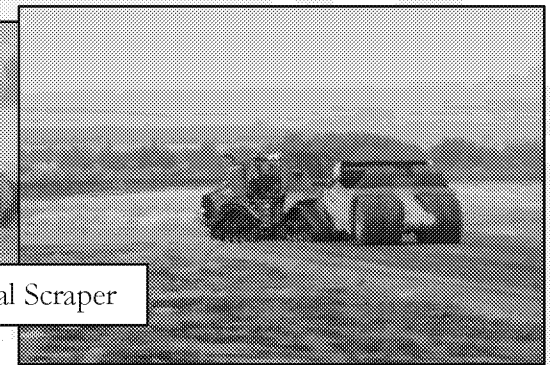
- Work Plan Status
- Significant Work Performed to Date
 - ▶ Mechanized scraping of the HDA
 - ▶ Surface clearance operations
 - ▶ Sifting stockpiled material from the HDA
 - ▶ MEC/MPPEH recovered
 - ▶ Groundwater and Soil Sampling
- Questions & Discussion



Umatilla ADA RD/RA – Work Performed to Date



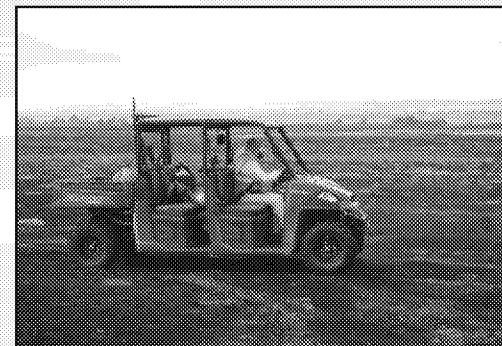
Tractor-Towed Agricultural Scraper



Mechanized
scrapping of
the HDA

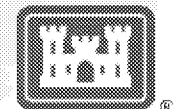


UXOQC
Inspecting
Scraped
Grids



Surface Clearance Performed on Scraped Area

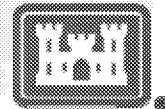
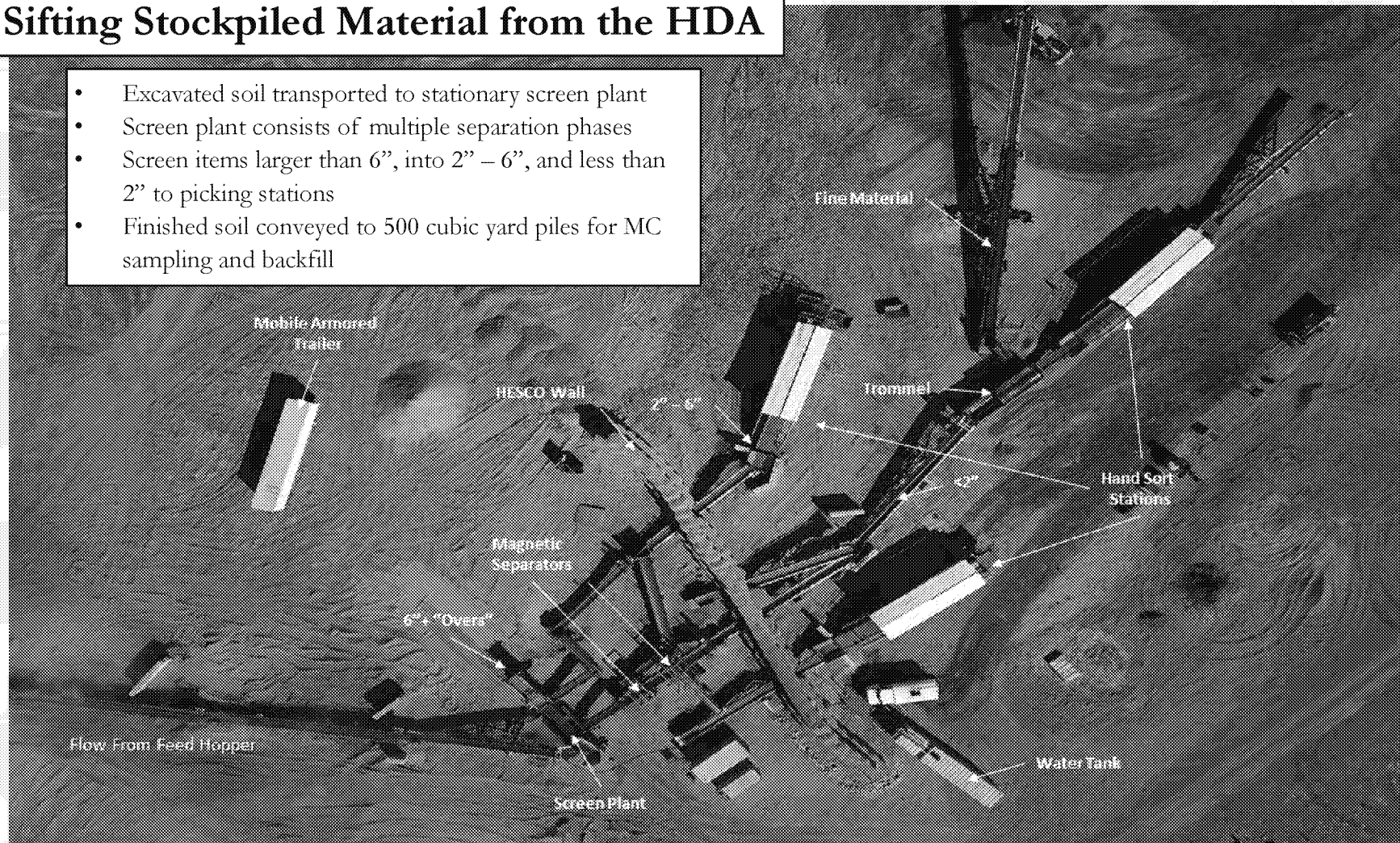
Surface
clearance
operations



Umatilla ADA RD/RA – Work Performed to Date

Sifting Stockpiled Material from the HDA

- Excavated soil transported to stationary screen plant
- Screen plant consists of multiple separation phases
- Screen items larger than 6", into 2" – 6", and less than 2" to picking stations
- Finished soil conveyed to 500 cubic yard piles for MC sampling and backfill



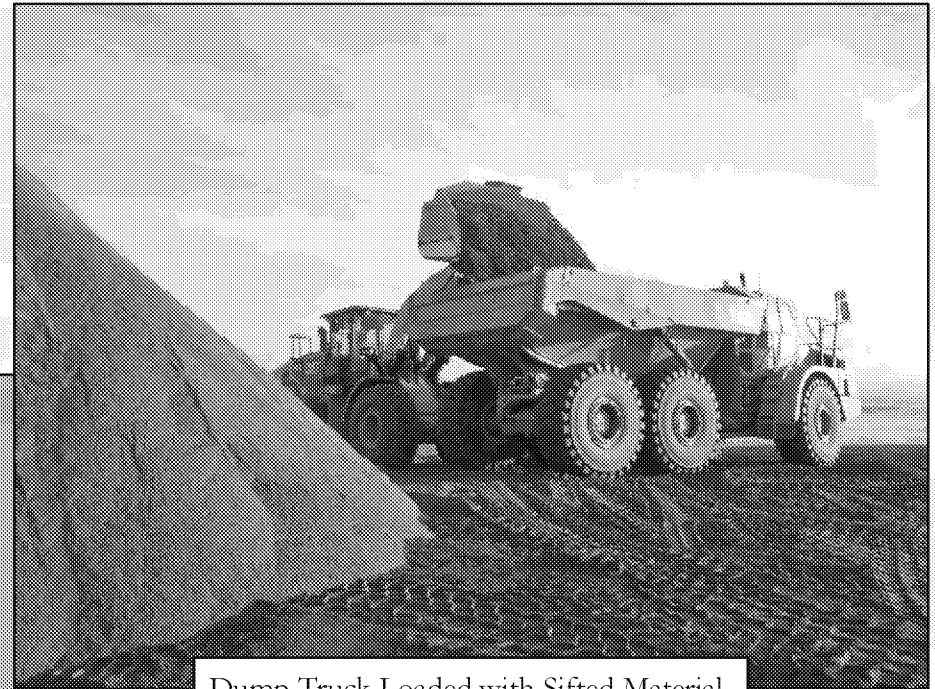
Umatilla ADA RD/RA – Work Performed to Date

To date:

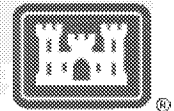
- Approximately 90,000 CY of material scraped
- Approximately 80,000 CY sifted



Sifted soil being stacked

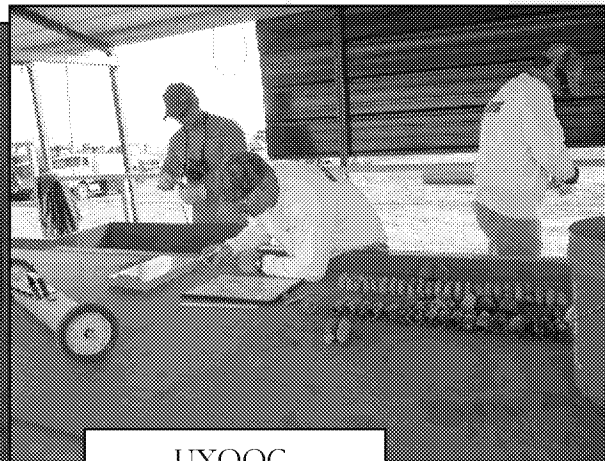
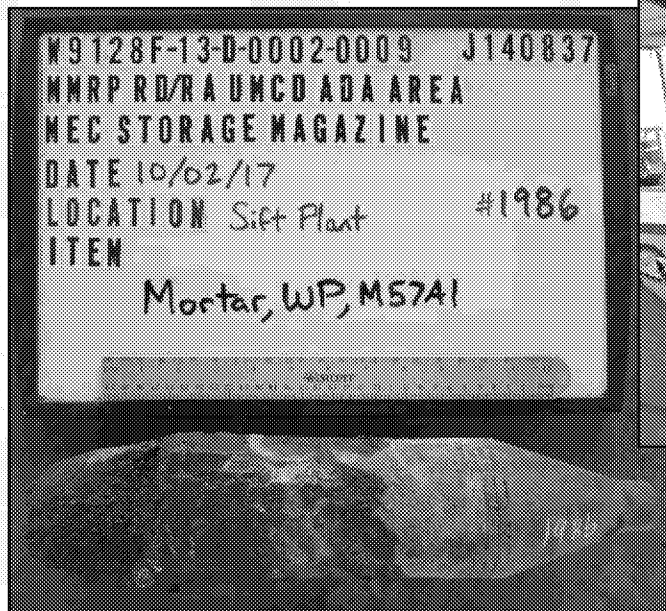


Dump Truck Loaded with Sifted Material

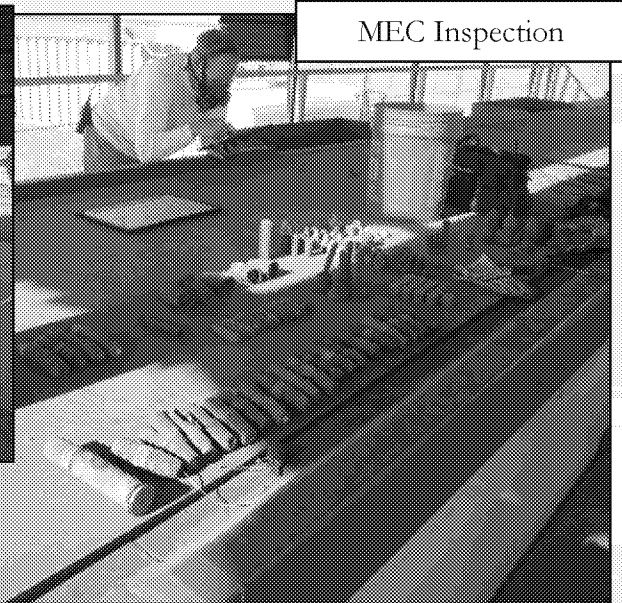


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Umatilla ADA RD/RA – Work Performed to Date



UXOQC
Documenting MEC
Items



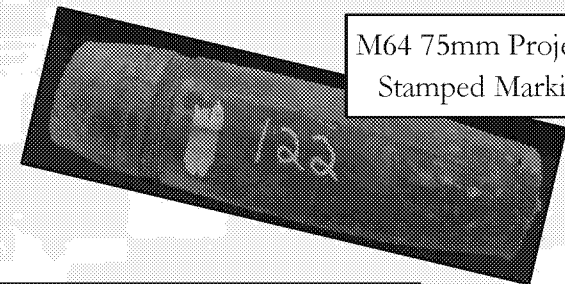
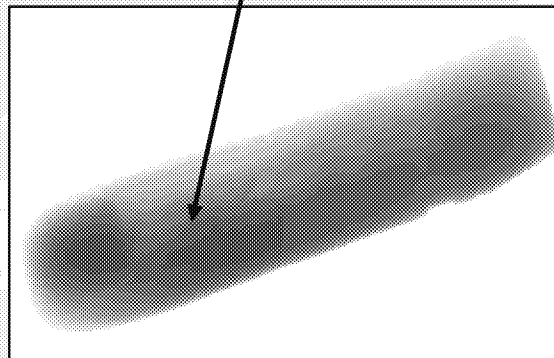
MEC Inspection

MEC/MMPEH Recovered

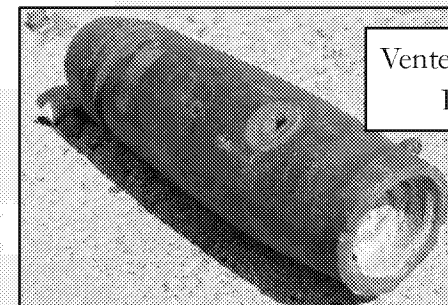
To date:

- Over 3,000 MEC and 20 MPPEH recovered
- Approximately 120,000 lbs. MDAS recovered
- Six demolition shots
- Over 2,000 MEC disposed

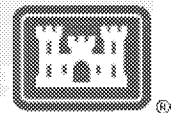
X-Ray of round,
crack in bursting
tube



M64 75mm Projectile,
Stamped Markings

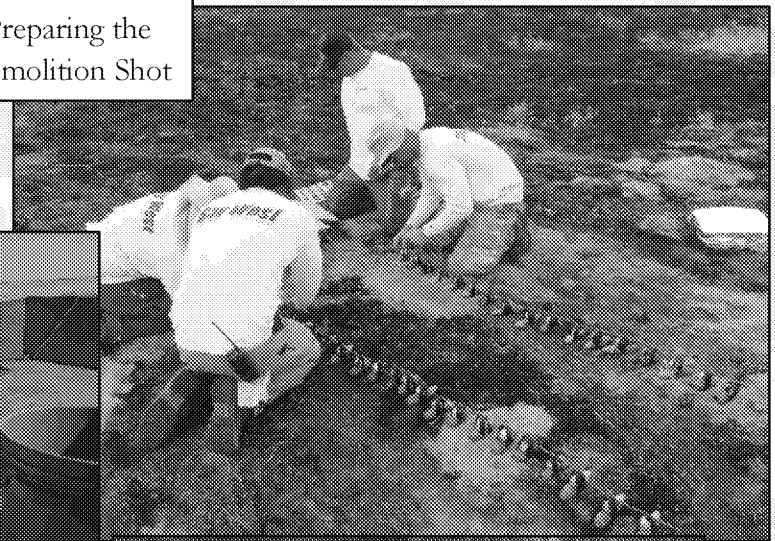


Vented M64 75mm
Projectile

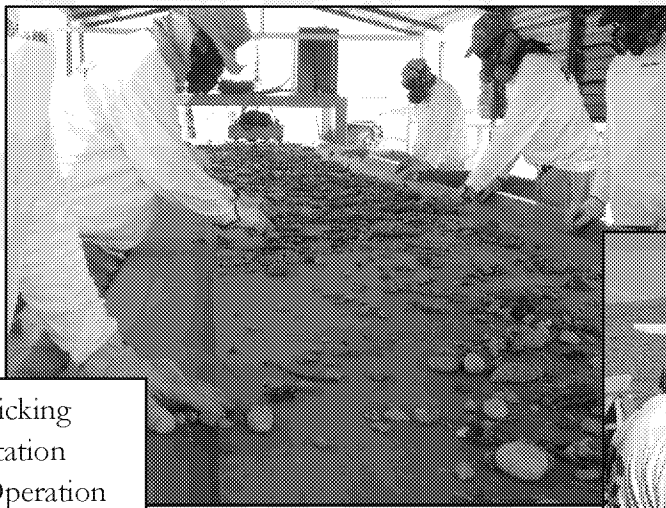


Umatilla ADA RD/RA – Work Performed to Date

Preparing the
Demolition Shot



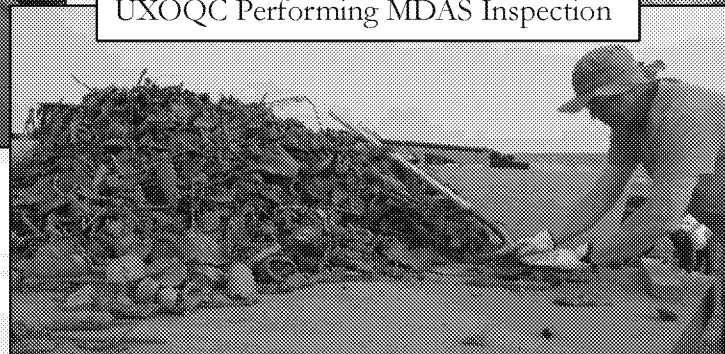
Picking
Station
Operation



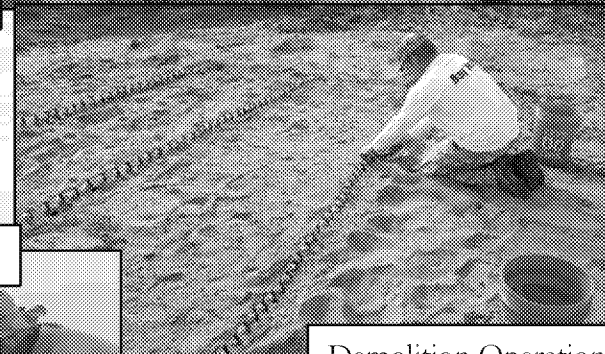
MDAS Inspection



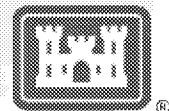
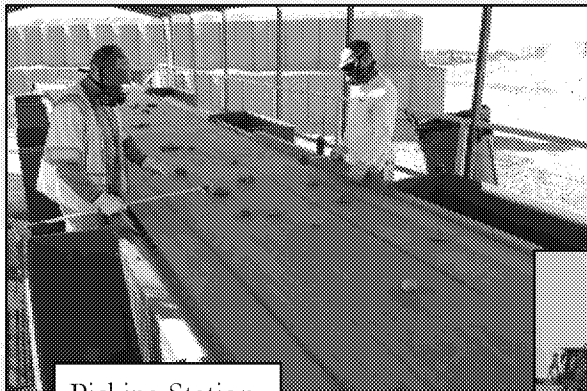
UXOQC Performing MDAS Inspection



Demolition Operations



Picking Station

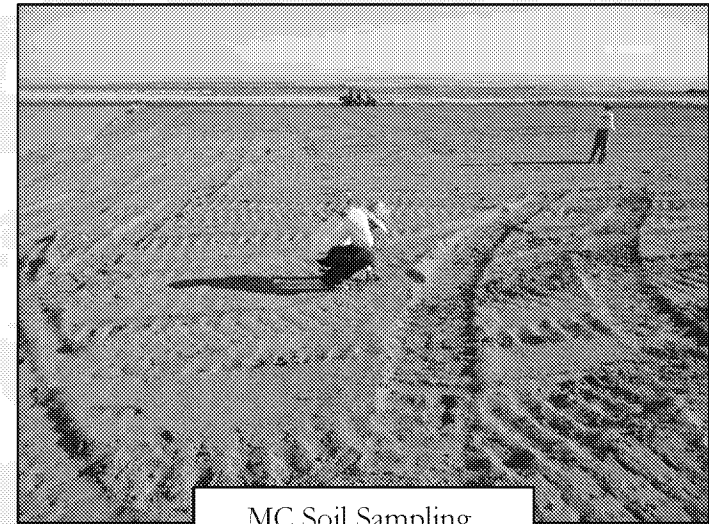


Umatilla ADA RD/RA – Work Performed to Date

■ Groundwater and Soil Sampling

► Groundwater

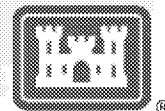
- Samples collected at 38 MW and analyzed for total arsenic
- Maximum detected concentration was 40.2 µg/L at a well located in north central portion of ADA
- Minimum detected concentration was 8.67 µg/L at a well located along western fence line in central portion of ADA
- 2017 values consistent with sampling values collected during RI and documented in ROD, which ranged from 10 to 40 µg/L across ADA



MC Soil Sampling

► Soil

- 140 MC samples collected IAW Final UFP-QAPP Rev. 2, Sept. 2017
- All samples collected from 100' by 100' grids within 0 – 2"
- Data validation confirmed that 2,4-DNT detected at 3.87 mg/kg in stockpile 81, exceeding 2.7mg/kg Cleanup Level established in ROD/ESD
- One five-point composite waste characterization sample collected to address 2,4-DNT exceedance



EPA
Maximum
Contamination
Level (ug/L)

Total Arsenic Concentration for ADA Wells

Total Arsenic (ug/L)

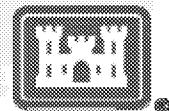
Well ID	1992	2017
001	29.7	25.0
002	24.8	19.5
003	NS	11.4
15-1	17.0	15.8
15-2	21.9	36.4
16-1	32.5	25.7
16-2	21.0	18.7
16-3	19.4	18.3
18-1	40.0	12.3
18-2	37.1	11.8
19-1	27.8	24.8
19-2	17.7	17.2
19-3	17.5	17.9
19-4	NS	22.2
31-1	34.4	27.4
31-2	26.3	15.5
31-3	90.5	16.7
38-1	22.3	10.2
38-2	33.2	20.5

Well ID	1992	2017
38-3	NS	8.67
38-4	NS	22.8
41-1	27.8	21.6
57-1	30.6	18.5
57-2	29.3	12.9
57-3	27.9	14.9
57-4	NS	13.7
57-5	31.0	40.2
59-1	NS	11.0
59-2	NS	35.4
SB-4	18.2	19.8
MW-3R	NS	14.3
MW-31	NS	22.8
MW-32	NS	17.0
MW-42	NS	13.0
MW-43	NS	25.8
MW-44	NS	20.1
MW-45	NS	18.2
MW-46	NS	14.4

**EPA Maximum
Contamination
Level:**

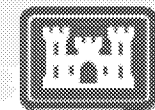
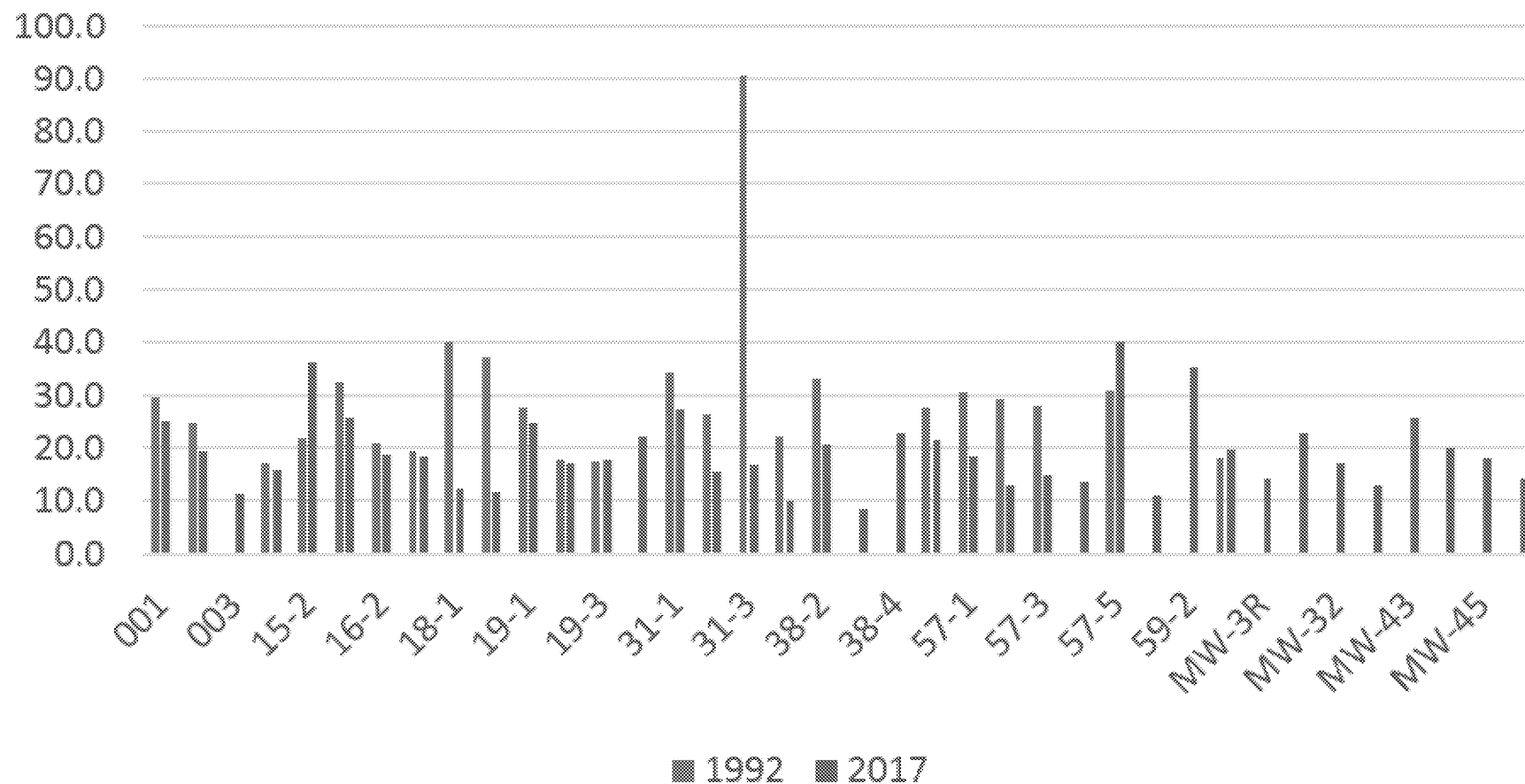
1992: 50 ug/L

2017: 10 ug/L

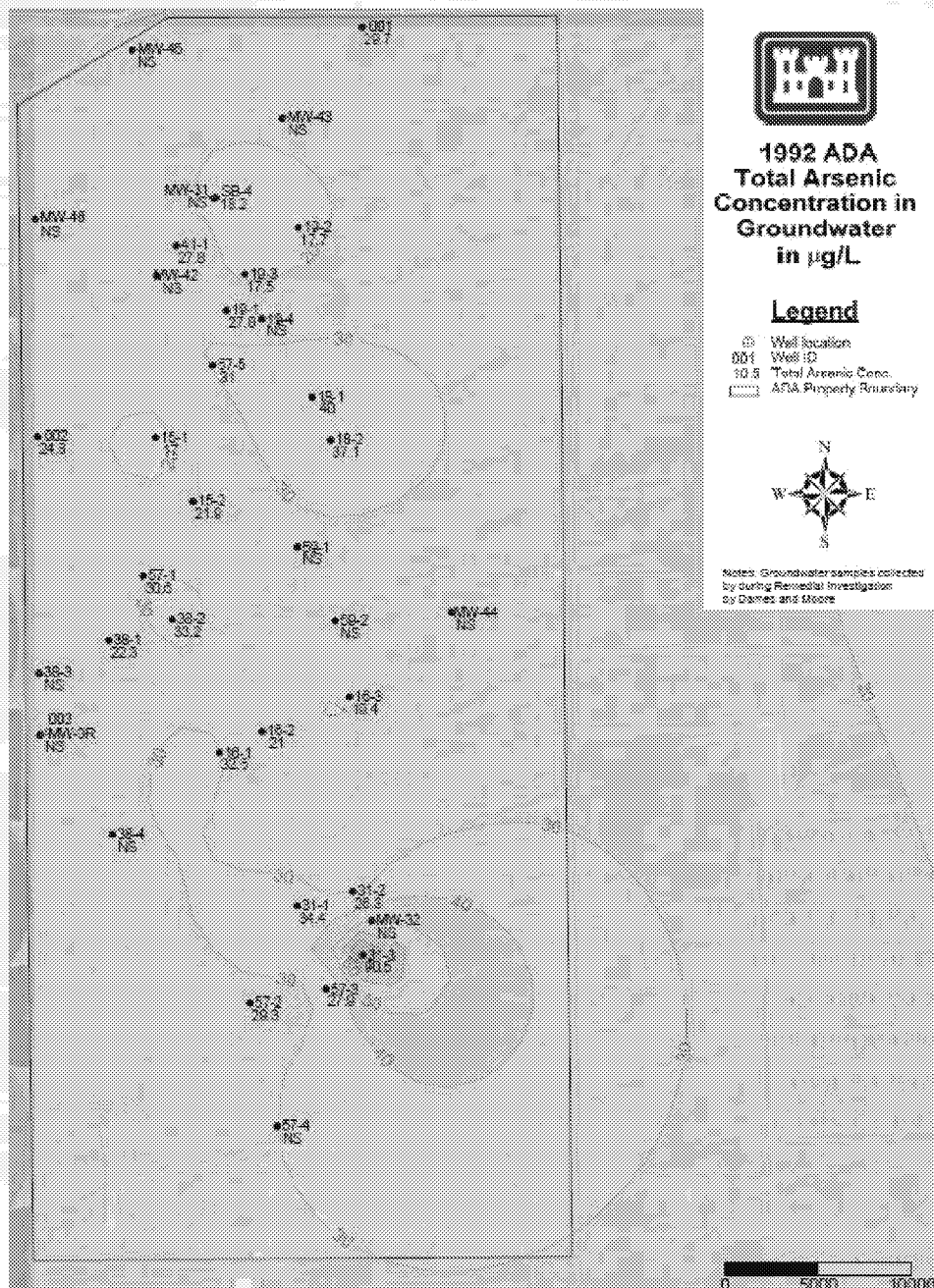


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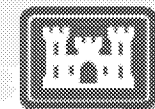
Arsenic Concentrations 1992 - 2017



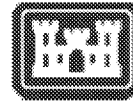
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(See hand-out)



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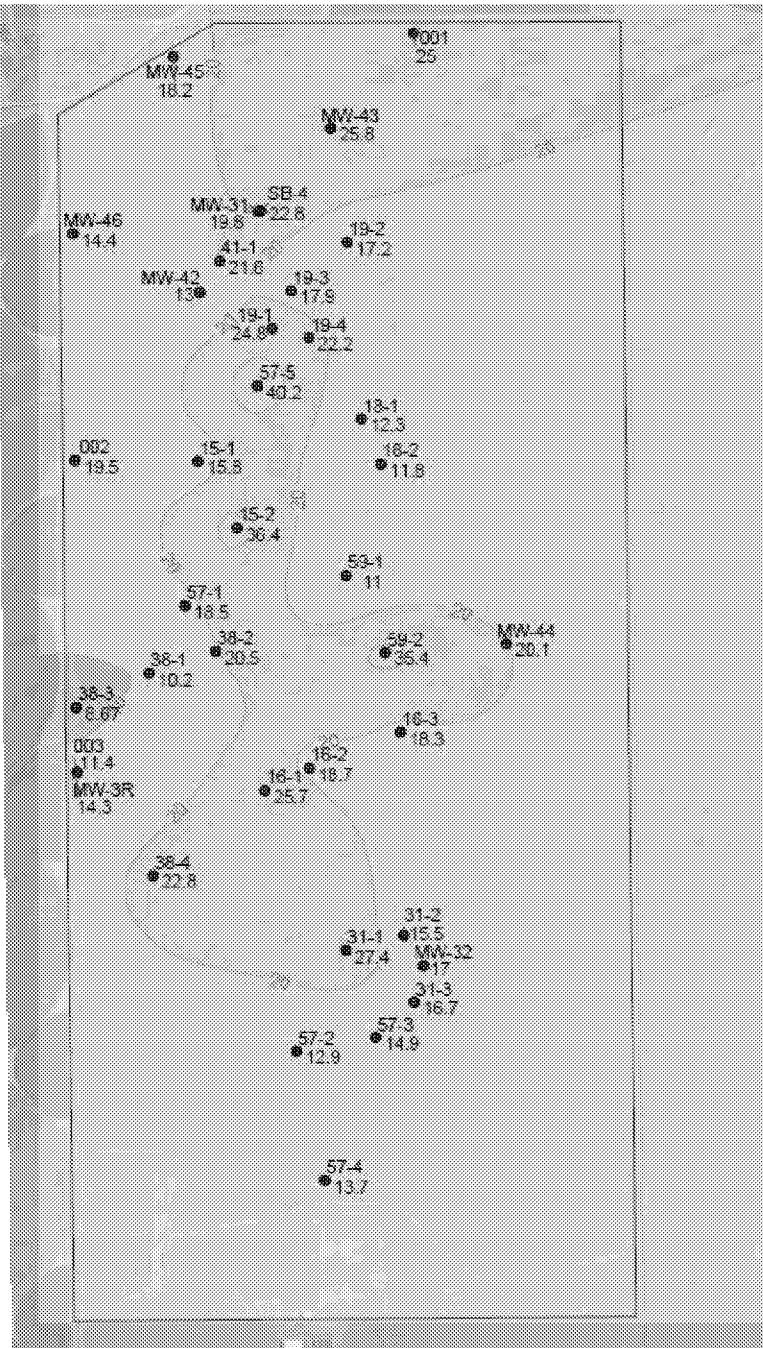
**June 2017 ADA
Total Arsenic
Concentration in
Groundwater
in $\mu\text{g/L}$**

Legend

- Well location
- Well ID
- Total Arsenic Conc.
- ADA Property Boundary

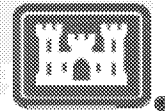


Note: Groundwater samples
collected by Bay West June 2017



0 5000 10000

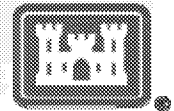
(See hand-out)



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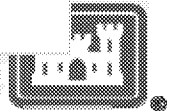
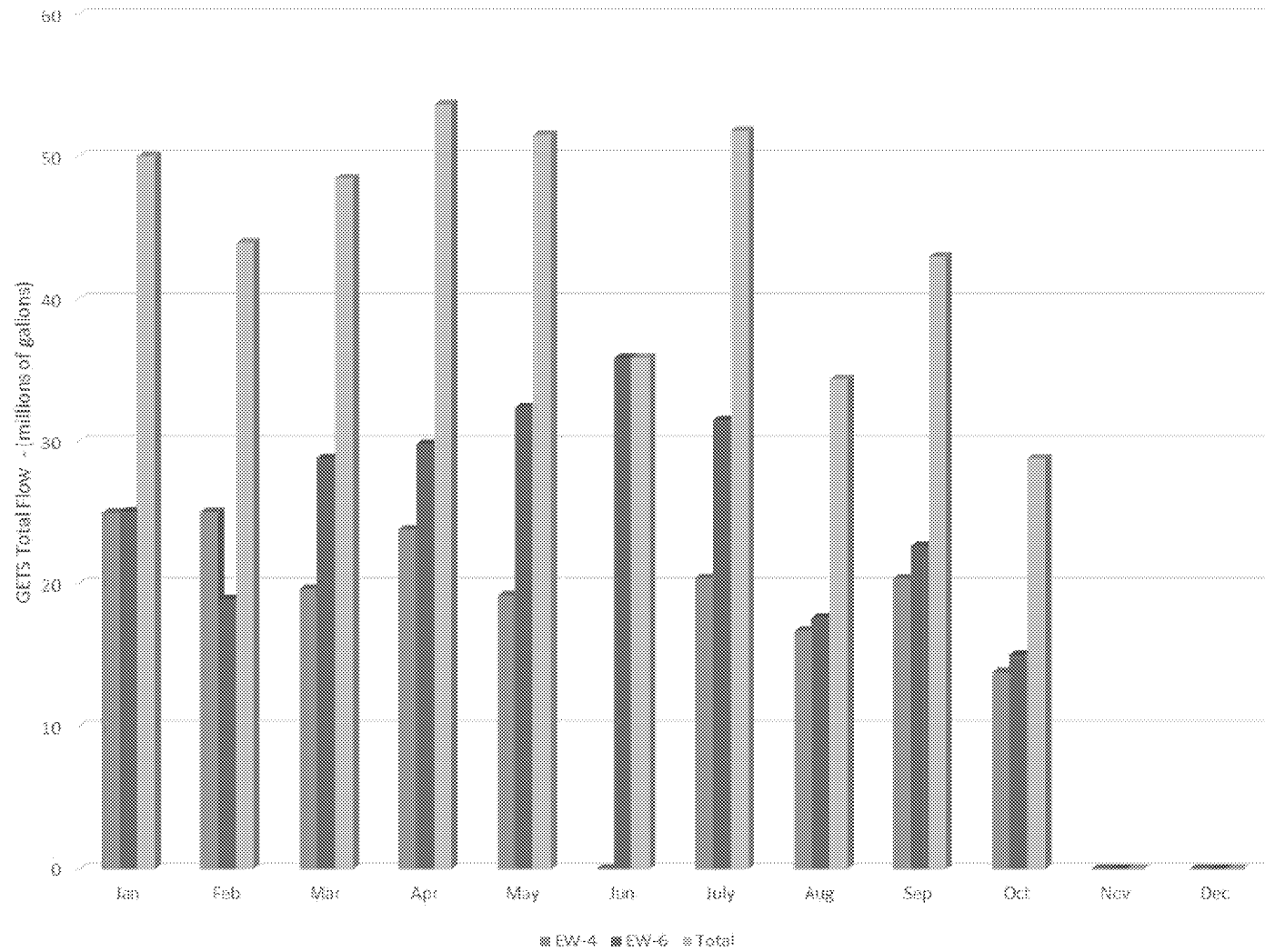
Umatilla Groundwater Treatment Performance Agenda

- Performance Data
- Focus Feasibility Study

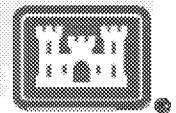
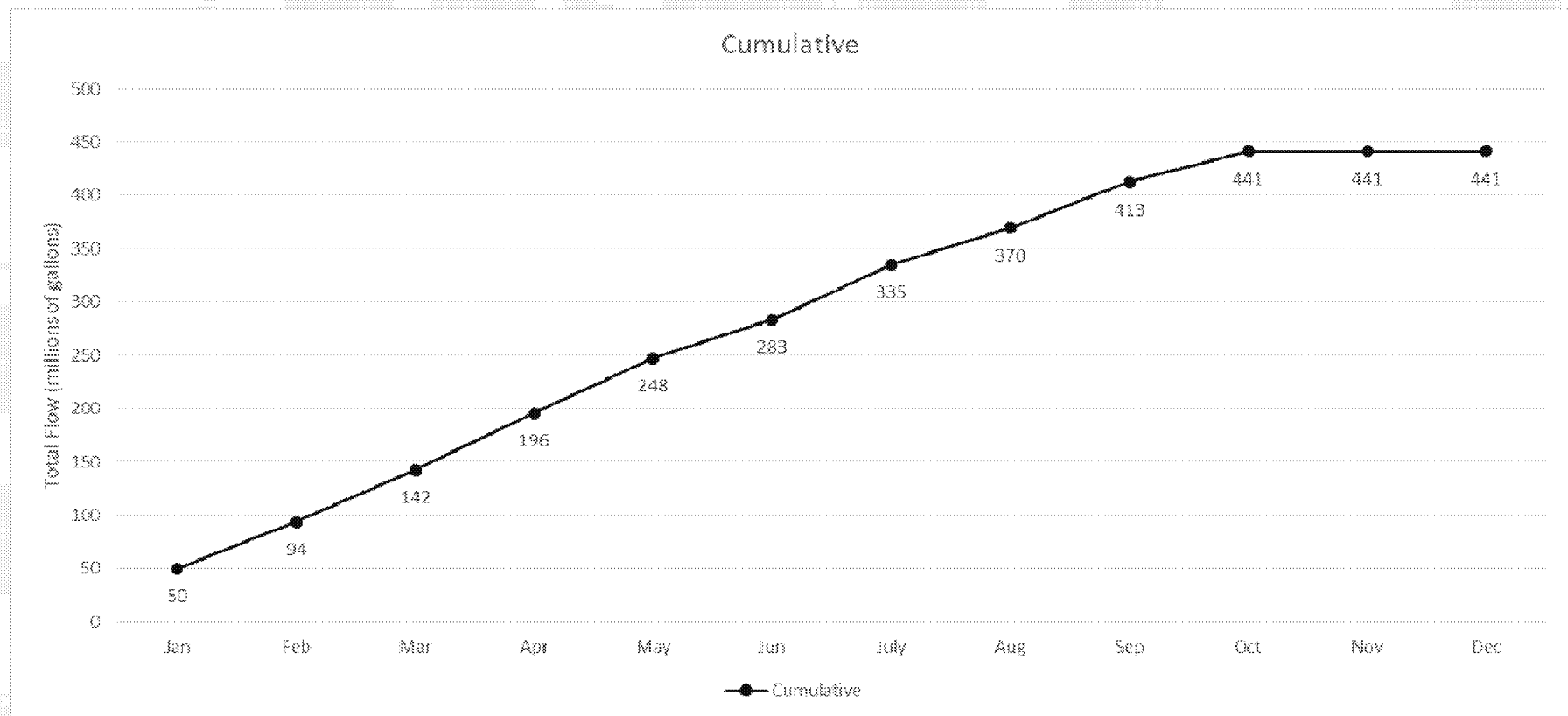


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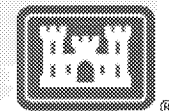
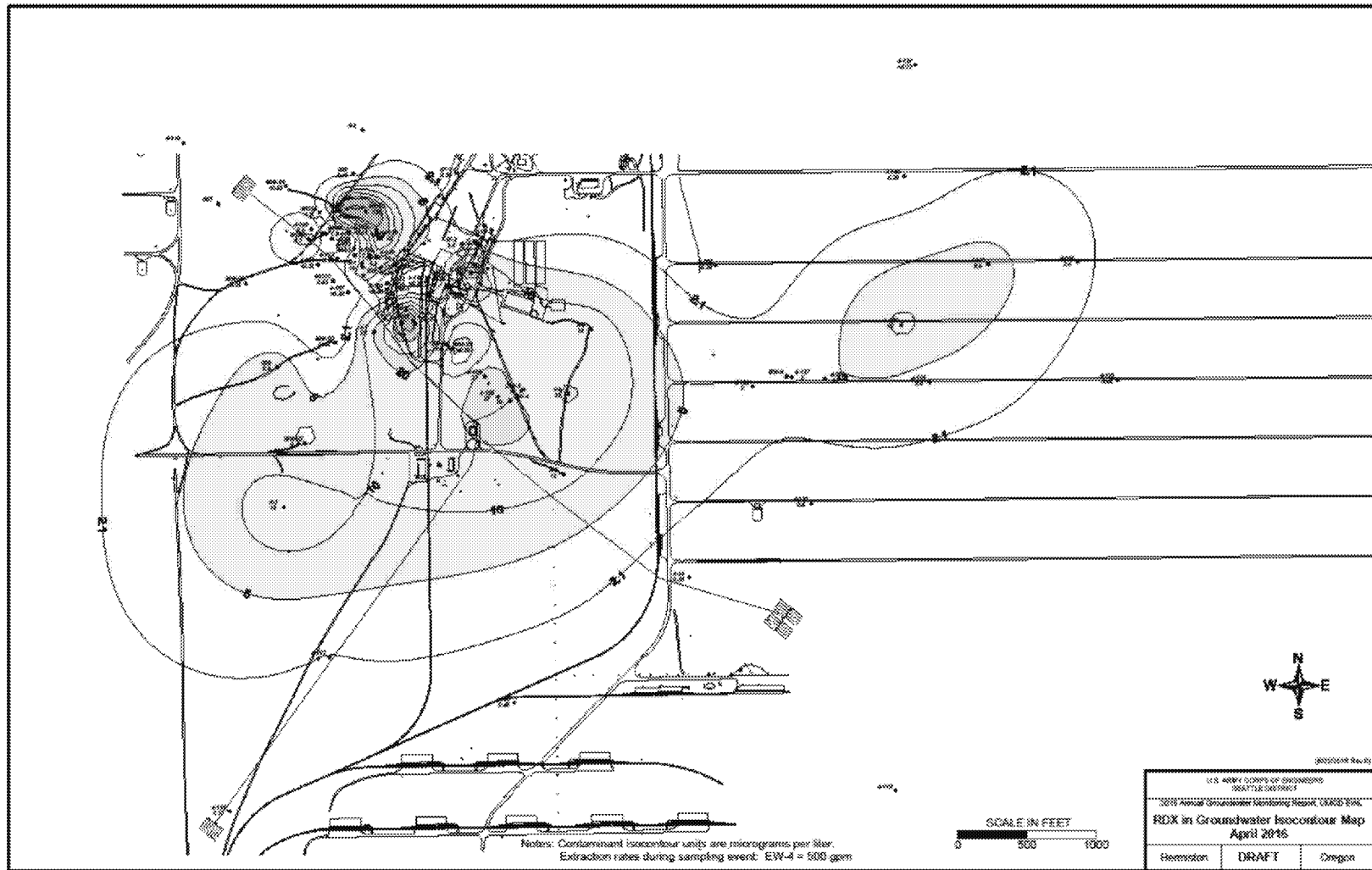
UMCD GETS PERFORMANCE



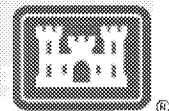
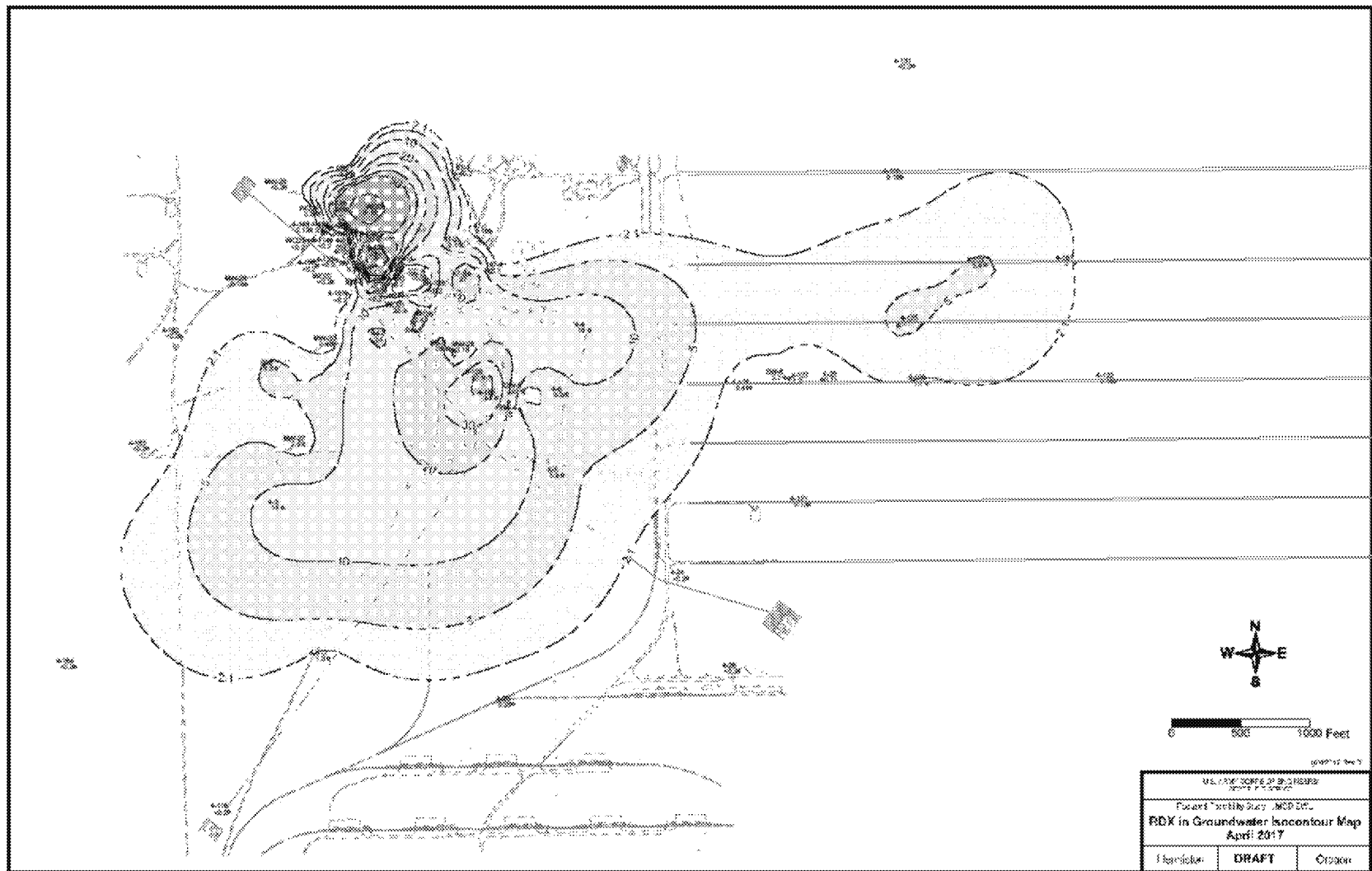
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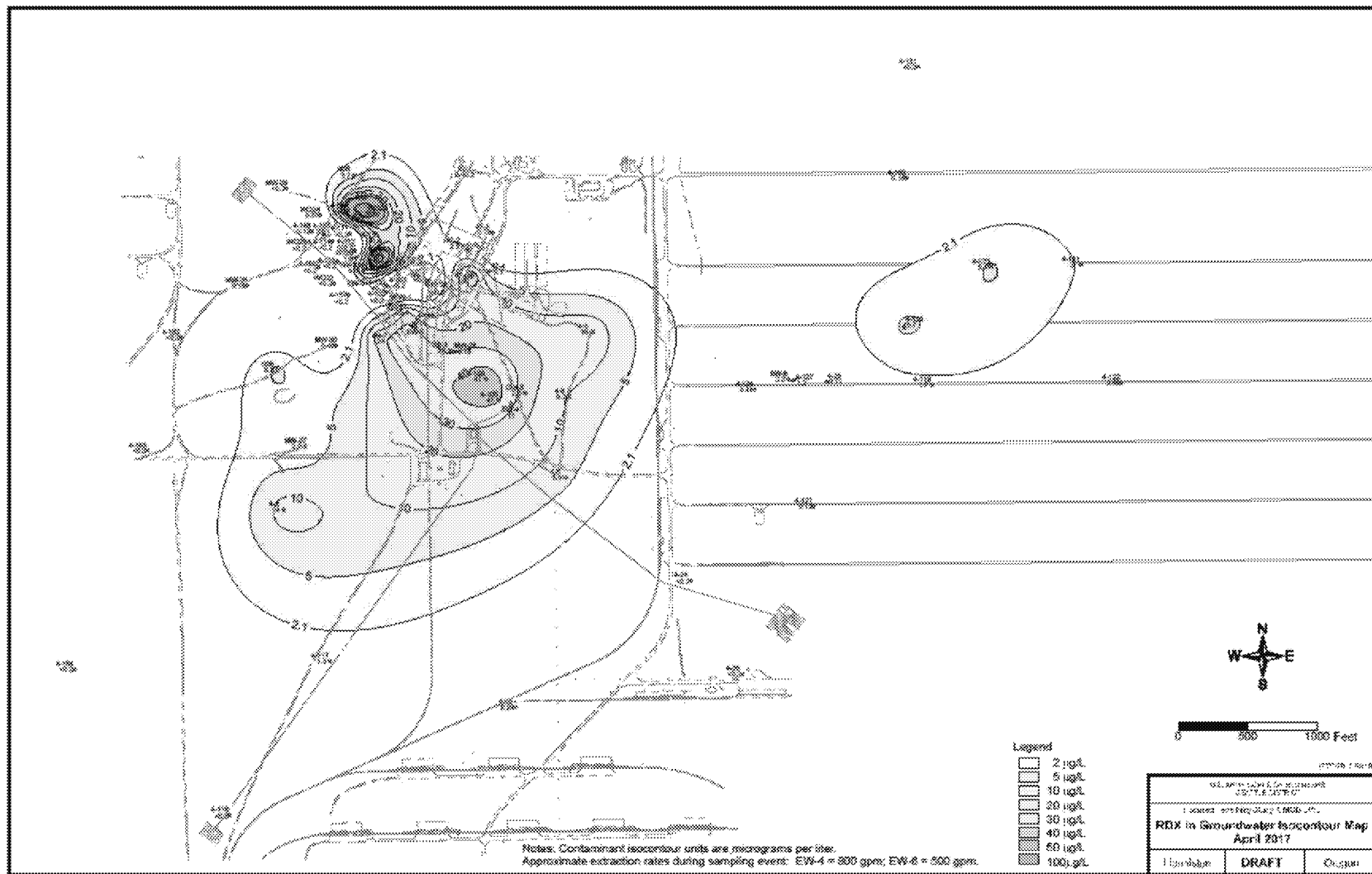
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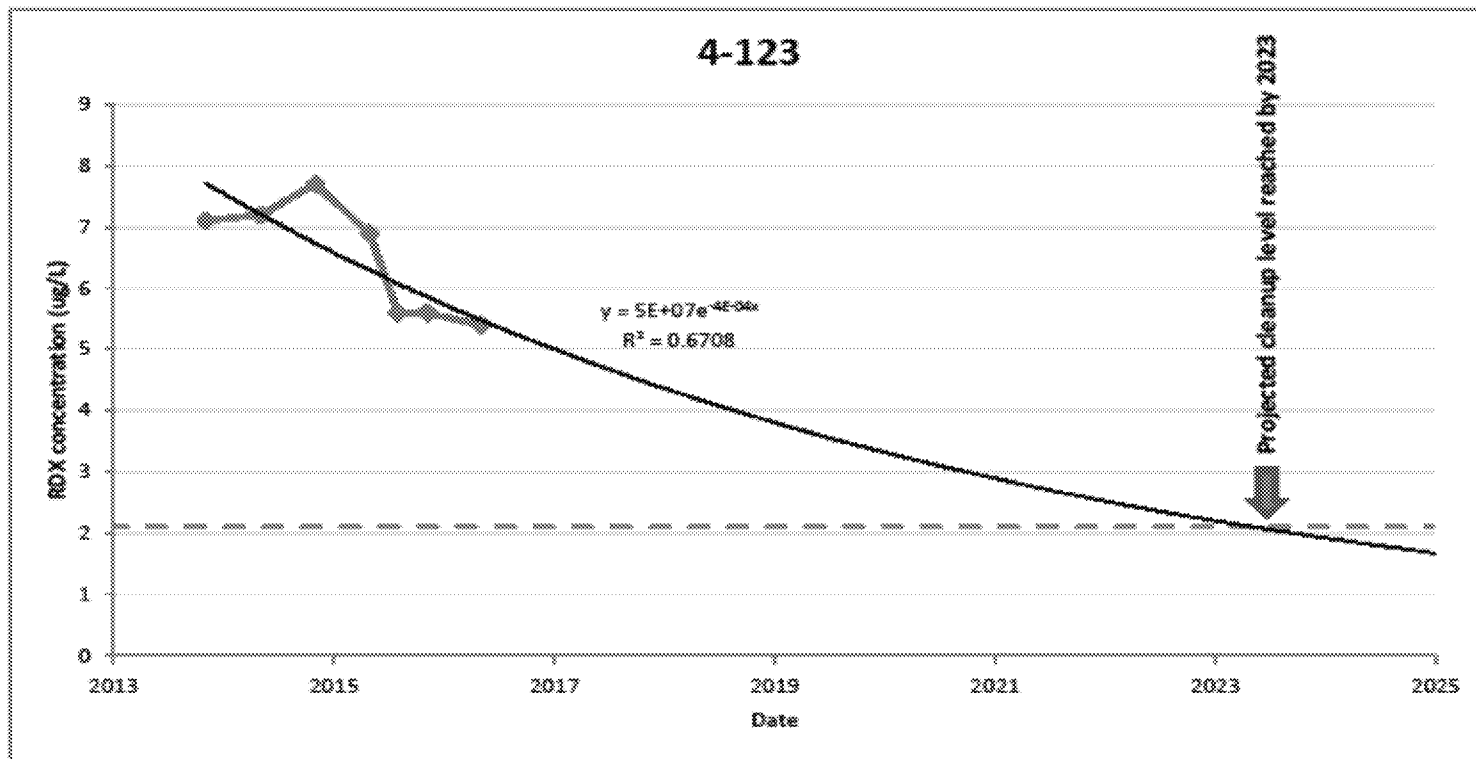
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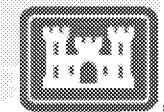
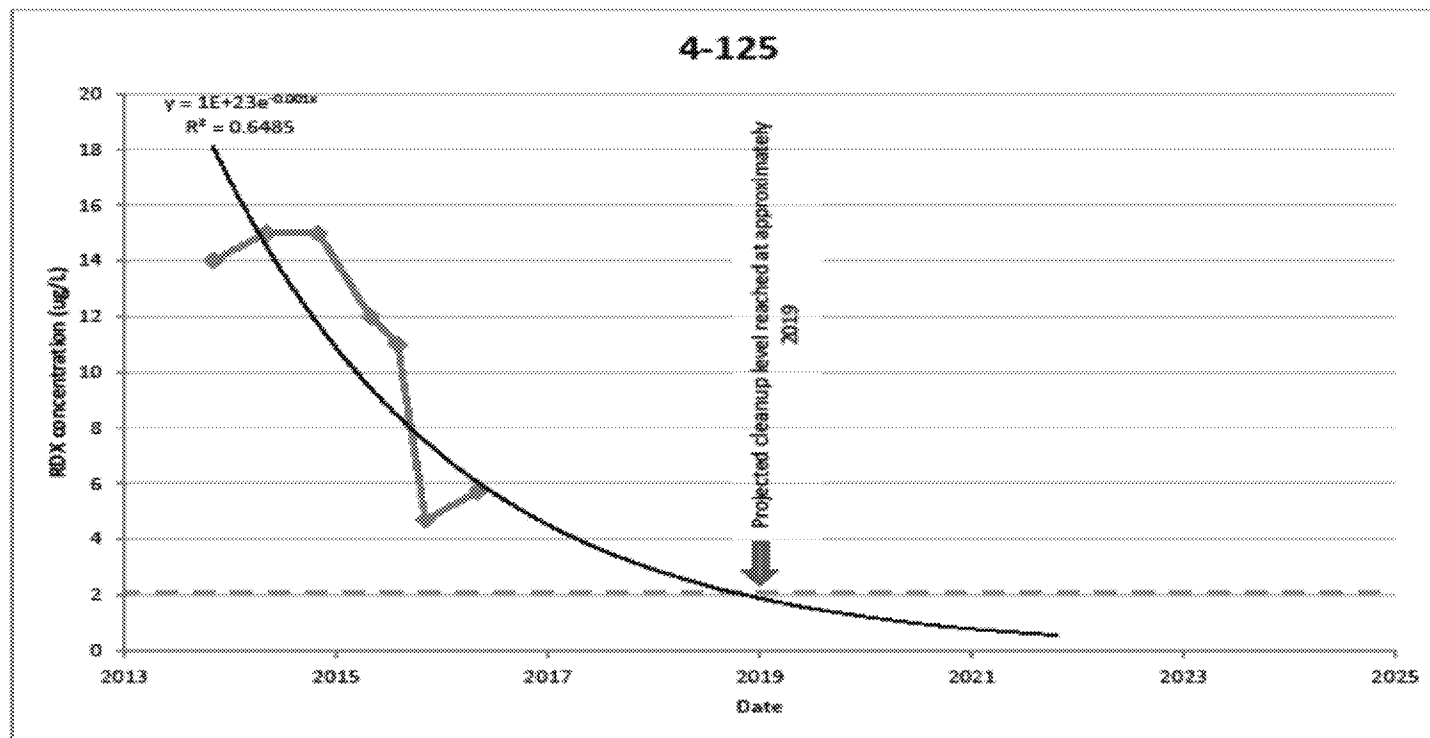
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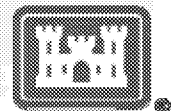
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Focused Feasibility Study

- In final internal COE review
- BRAC review on-going
- Leaning towards alternative featuring:
 - ▶ P&T to eliminate eastern lobe and to maximize progress in EWL area
 - ▶ Then - anaerobic bio focused on the source area
- Use adaptive management to determine implementation schedule



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